HEAT TRANSCRIPTION MEMBER

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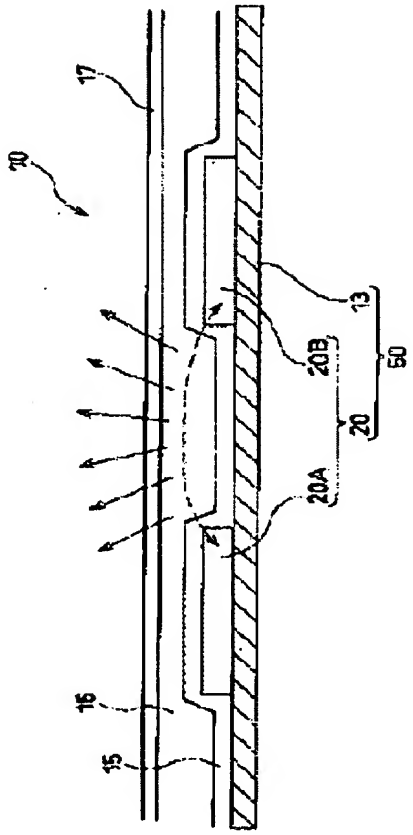
Abstract of **JP2002050475**

PROBLEM TO BE SOLVED: To provide a preparation method of an EL panel wherein a plate making is unnecessary. SOLUTION: In order to prepare an EL substrate 10 by forming a dielectric layer 15 and a luminous layer 16 at the first and the second comb-shaped electrodes 20A, 20B formed on a surface of a printed-circuit board 13, a layer of dielectric material 31 and a layer of luminophor 41 are formed at a heat transcription ribbon 43.



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CLAIMS

[Claim(s)]
[Claim 1] The hot printing member characterized by having formed the luminous layer on the base material and forming a dielectric layer on this luminous layer.
[Claim 2] The hot printing member characterized by having formed the dielectric layer on the base material and forming a luminous layer on this dielectric layer.
[Claim 3] The hot printing member characterized by forming a luminous layer on the surface of a base material.
[Claim 4] The hot printing member characterized by forming a dielectric layer on the surface of a base material.

[Translation done.]

* NOTICES *

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the hot printing member for forming a dielectric layer and a luminous layer and forming an EL panel about the hot printing member which imprints ink using a thermal head etc., on the substrate which formed in the front face in more detail many polar zone of the pair which can be energized mutually.
[0002]
[Description of the Prior Art] From the former, what is shown in drawing 11 is known as an EL panel. This EL panel 7 formed the transparent electrode 2 in the transparence base material 1, formed the luminous layer 3 and the dielectric layer 4 in this transparent electrode 2, formed the back plate 5 of an aluminum sheet in this dielectric layer 4, and has covered it by the protective coat 6.
[0003] In this EL panel 7, as shown in drawing 12 , when indicating by luminescence only the patterns P1 and P2 and alphabetic characters M1-M3 which were drawn on the base material 1, the dielectric layer 4 and luminous layer 5 which were doubled with the configuration of patterns P1 and P2 or alphabetic characters M1-M3 are formed on the back plate 5 of an aluminum sheet by platemaking for silk printing.
[0004]
[Problem(s) to be Solved by the Invention] however -- if it is in such EL panel 7 -- the platemaking for silk printing -- required -- especially -- patterns P1 and P2 and alphabetic character M1- when changing the luminescent color for every M3, the version of the number corresponding to each patterns P1 and P2 and alphabetic characters M1-M3 must be created. For this reason, many processes were needed and there was a problem of becoming cost quantity.
[0005] This invention was made in view of the above-mentioned situation, and aims at offering the hot printing member used for the creation approach of EL substrate which makes platemaking unnecessary.
[0006]
[Means for Solving the Problem] In order to attain the above-mentioned purpose, the hot printing member of claim 1 is characterized by having formed the luminous layer on the base material and forming a dielectric layer on this luminous layer.
[0007] If exoergic control of a thermal head is performed carrying a hot printing member, carrying a thermal head on a hot printing member, and a substrate and a hot printing member, and a thermal head being displaced relatively so that it may be located in order of a dielectric layer and a luminous layer on the substrate in which many polar zone of the pair which can be energized was formed according to the hot printing member of claim 1, transition of the dielectric layer of a hot printing member and a luminous layer will be performed on a substrate.
[0008] Therefore, if exoergic control is carried out connecting printer equipment to the plot device concerning the so-called personal computer and microcomputer control, setting a substrate in printer equipment, carrying out alignment of the hot printing member to a substrate, carrying it in it, and moving relatively a substrate and a hot printing member, and a thermal head, a part for the light-emitting part of a request configuration can be formed on many polar zone of a substrate, and it is not necessary to perform platemaking printing by silk printing like before.
[0009] Here, although the base material of a hot printing member forms a hot printing nature dielectric layer and a hot printing nature luminous layer in the front face of plastic film or a sheet plastic like a hot printing ribbon, it is good also considering paper, cloth, etc. as a base material.
[0010] The hot printing member of claim 2 of this invention is characterized by having formed the dielectric layer on the base material and forming a luminous layer on this dielectric layer.
[0011] Once the hot printing member of claim 2 imprints base material-like a dielectric layer and a luminous layer on the base material for an indirect imprint in consideration of an indirect imprint, it can form a part for the light-emitting part of a request configuration on an EL panel by imprinting the dielectric layer and luminous layer on the base material for an indirect imprint on an EL panel substrate. A thermal head is used at the time of an indirect imprint, and if a heat roller is used for the re-imprint of a up to [an EL panel substrate], even if the irregularity of the polar zone suits an EL panel substrate, an imprint will be carried out to it good.
[0012] The hot printing member of claim 3 of this invention is characterized by forming a luminous layer on the surface of a base material.
[0013] The hot printing member of claim 4 of this invention is characterized by forming a dielectric layer on the surface of a base material.
[0014] The hot printing member of claim 3 and claim 4 can form the light-emitting part of a request configuration in an EL panel by being able to use it independently respectively, forming a dielectric layer on an EL panel substrate, and then forming a luminous layer on this dielectric layer.
[0015]
[Embodiment of the Invention] Hereafter, the creation approach of the EL panel using the hot printing member and it concerning the gestalt of implementation of this invention is explained based on a drawing.
In [1st operation gestalt] drawing 1 , 10 is the EL panel created by the creation approach of this invention, and a pattern A1 - A5 are printed by the screen 11 of this EL panel 10.

[0016] EL panel 10 consists of two or more KUSHIBA electrodes 20 formed on a printed-circuit board (substrate) 13 and this printed-circuit board 13 (front face), a dielectric layer 15 which covered this KUSHIBA electrode 20 and printed-circuit board 13, a luminous layer 16 formed on this dielectric layer 15, and sheet 17 grade stuck so that the whole surface of a printed-circuit board 13 might be covered from on this luminous layer 16 and the KUSHIBA electrode 20, as shown in drawing 2 . A pattern A1 - A5 are printed by this sheet 17.

[0017] The front face of a printed-circuit board 13 is divided by the segments B1-B24 of 24 arranged in the shape of a matrix as shown in drawing 3 . In addition, the shape of the shape of a honeycomb and an indeterminate form has as this segment besides the shape of a rectangle.

[0018] As shown in drawing 4 , the KUSHIBA electrode 20 which consists of 1st KUSHIBA electrode (1st electrode) 20A and 2nd KUSHIBA electrode (2nd electrode) 20B is formed in the segment B1. This KUSHIBA electrode 20 is formed of etching.

[0019] 1st KUSHIBA electrode 20A has two or more KUSHIBA polar-zone 20Ab(s) prolonged rightward in parallel, respectively from base-electrode section 20Aa prolonged in the vertical direction (setting to drawing 4), and this base-electrode section 20Aa.

[0020] 2nd KUSHIBA electrode 20B has base-electrode section 20Ba prolonged in the vertical direction (setting to drawing 4), and two or more KUSHIBA polar-zone 20Bb(s) prolonged rightward in parallel from this base-electrode section 20Ba, respectively, and KUSHIBA polar-zone 20Ab and KUSHIBA polar-zone 20Bb are arranged in parallel by turns. That is, KUSHIBA polar-zone 20Ab and KUSHIBA polar-zone 20Bb are installed.

[0021] The clearance between KUSHIBA polar-zone 20Ab and the KUSHIBA electrode 20 section Bb is about 100 microns, and the width of face of KUSHIBA polar-zone 20Ab and 20Bb is about 100 microns.

[0022] the same -- each -- the KUSHIBA electrode 20 which consists of 1st KUSHIBA electrode (1st electrode) 20A and 2nd KUSHIBA electrode (2nd electrode) 20B is formed in segment B-2-B24.

[0023] Alternating voltage can be made to impress independently according to each segment B1 - B24 between 1st KUSHIBA electrode 20A of each segments B1-B24, and 2nd KUSHIBA electrode 20B now.

[0024] Moreover, as shown in drawing 3 , the dielectric layers 15a-15e which covered the 1st and 2nd KUSHIBA electrodes 20A and 20B according to a pattern A1 - A5 are formed in the front face of a printed-circuit board 13. That is, according to a pattern A1 - A5, dielectric layers 15a-15e are formed on the electrode substrate 50 for EL panels. Luminous layers 16a-16e are formed on these dielectric layers 15a-15e. For example, luminous layer 16b is formed on dielectric layer 15b which covered the 1st and 2nd KUSHIBA electrodes 20A and 20B to the segment B9 as shown in drawing 5 , and this dielectric layer 15b.

[0025] A dielectric layer 15 and a luminous layer 16 are formed by carrying out hot printing of the hot printing nature dielectric (dielectric layer) 31 of the hot printing ribbons 30 and 40 as a hot printing member shown in drawing 6 - drawing 8 , and the hot printing nature emitter (luminous layer) 41 with a thermal transfer printer (not shown).

[0026] The hot printing ribbon 30 shown in drawing 6 forms the hot printing nature dielectric 31 in the front face of the base material 32 which consists of a sheet plastic or plastic film by spreading etc. The hot printing nature dielectric 31 mixes dielectrics, such as for example, titanic-acid-ized barium, and binders, such as polyester resin, with an ethylene system organic solvent.

[0027] The hot printing ribbon 40 shown in drawing 7 forms the hot printing nature emitter 41 in the front face of the base material 42 which consists of a sheet plastic or plastic film by spreading etc. The hot printing nature illuminant 41 mixes luminescent matter, such as for example, oxidization silicon zinc + manganese, and binders, such as polyester resin, with an ethylene system organic solvent.

[0028] The hot printing ribbon 43 shown in drawing 8 forms the hot printing nature emitter 41 in the front face of the base material 42 which consists of a sheet plastic or plastic film by spreading etc., and forms the hot printing nature dielectric 31 by spreading etc. on this hot printing nature emitter 41.

[0029] in addition, the thermal head according to the irregularity of the KUSHIBA electrode 20 when imprinting by the hot printing ribbon 43 and the thermal head to the field in which the KUSHIBA electrode 20 of a printed-circuit board 13 was formed -- getting damaged -- etc. -- when feeling uneasy, the configuration of a dielectric 31 and an emitter 41 is once imprinted to the plastic film or the sheet plastic for a re-imprint by indirect imprint. In this case, in order to contact a dielectric 31 to the KUSHIBA electrode 20 and to form an illuminant 41 in a dielectric 31 finally, at an indirect imprint process, on the sheet plastic for an indirect imprint (or film), stratum disjunctum is formed, the layer of an illuminant 41 is formed on that stratum disjunctum, and then the layer of a dielectric 31 is formed.

[0030] When adopting this indirect replica method, a hot printing ribbon forms the layer of a dielectric 31 on a base material 42, forms the illuminant 41 on the layer of a dielectric 31, and carries out the indirect imprint of an illuminant 41 and the dielectric 31 for the hot printing ribbon for this indirect imprint at the sheet plastic for an indirect imprint, or plastic film using a thermal head.

[0031] Next, the sheet plastic for an indirect imprint or plastic film is arranged on the KUSHIBA electrode 20 of a printed-circuit board 13 so that a dielectric 31 may contact the KUSHIBA electrode 20, and heating pressurization is carried out with a hot printing roller. In addition, a flexible sheet plastic with thermal conductivity etc. may be made to intervene between this hot printing roller and printed-circuit board 13.

[0032] A broad sheet-like hot printing ribbon is cut according to a pattern by the cutting plotter, it is stuck by pressure with a hot printing roller, and a dielectric layer and a luminous layer may be formed.

[0033] So that it may be located in order of the layer (dielectric layer) of a dielectric 31, and the layer (luminous layer) of an emitter 41 on the printed-circuit board 13 (substrate) in which many KUSHIBA electrodes 20 (polar zone of a pair) which can be energized were formed according to this hot printing ribbon Transition of the layer of a dielectric 31 and the layer of an emitter 41 is performed on a printed-circuit board 13 by performing exoergic control of a thermal head, carrying the hot printing ribbon 43, carrying a thermal head on the hot printing ribbon 43, and a substrate and a hot printing member, and a thermal head being displaced relatively.

[0034] Therefore, printer equipment is connected to the plot device concerning the so-called personal computer and microcomputer control. A printed-circuit board 13 is set in the equipment to which printer equipment or a thermal head can be moved. If exoergic control is carried out carrying out alignment of the hot printing ribbon 43 to a printed-circuit board 13, carrying it in it, and moving relatively a printed-circuit board 13 and the hot printing ribbon 43, and a thermal head to it The derivative and emitter of a request configuration can be formed on many KUSHIBA polar zone 20 of a printed-circuit board 13, and it is not necessary to perform platemaking printing by silk printing like before.

[0035] Here, although the base material of the hot printing ribbon 43 forms the layer of a dielectric 31, and the layer of an emitter 41 in the front face of plastic film or a sheet plastic like a hot printing ribbon, it is good also considering paper, cloth, etc. as a base material.

[0036] Moreover, when an indirect imprint is taken into consideration, once imprinting base material-like a dielectric layer and a luminous layer on the base material for an indirect imprint, a part for the light-emitting part of a request configuration can be formed on an EL panel by imprinting the dielectric layer and luminous layer on the base material for an indirect imprint on an EL panel substrate. A thermal head is used at the time of an indirect imprint, and if a heat roller is used, even if the irregularity of the polar zone is in an EL panel substrate, an imprint will be carried out to the re-imprint of a up to [an EL panel substrate] good.
[0037] Furthermore, drawing 6 and the hot printing ribbons 30 and 40 of drawing 7 can form the light-emitting part of a request configuration in an EL panel by being able to use it independently respectively, forming the layer of a dielectric 31 on the EL panel substrate 10, and then forming the layer of an emitter 41 on the layer of this dielectric 31.
[0038] Next, the creation process of EL panel 10 is explained. First, the creation sequence of EL panel 10 forms the KUSHIBA electrode 20 in the front face of a printed-circuit board 13, next forms a dielectric layer 15 and a luminous layer 16 in the front face with a thermal transfer printer. And the sheet 17 for protection is stuck on the last.
[0039] Thus, since a dielectric layer 15 and a luminous layer 16 are formed with a thermal transfer printer and a hot printing ribbon, by printing, the pattern of a free configuration, the dielectric layer 15 of an alphabetic character, and a luminous layer 16 can be formed, and it can form very easily in a short time. That is, platemaking becomes unnecessary and can create cheap EL panel 10 at few processes.
[0040] If alternating voltage is impressed between 1st KUSHIBA electrode 20A and 2nd KUSHIBA electrode 20B, as shown in drawing 2 , alternating current will flow in the direction shown with a broken line, and EL panel 10 created as mentioned above will emit light, as a luminous layer 16 shows by the arrow head of a continuous line by this alternating current.
[0041] each -- segment B6-B10, B12, B13, B15-B17, and B21 and B -- mutually-independent [of the luminous layers 16a-16e of each pattern A1 - A5] can be carried out, and they can be made to emit light by controlling the alternating voltage impressed to the KUSHIBA electrode 20 for every 22 That is, light can be made to be able to emit independently for every pattern A1 - A5, and each pattern A1 - A5 can be made to emit light by the free luminescence pattern.
[2nd operation gestalt] drawing 9 and drawing 10 show the 2nd operation gestalt of the creation approach of EL panel 10.
[0042] At the 1st process, with a thermal transfer printer (not shown), as shown in drawing 9 (B), hot printing of the hot printing nature dielectric 31 of the hot printing ribbon 30 shown in drawing 9 (A) is carried out to the imprint sheet 60. And at the 2nd process, this imprint sheet 60 is placed on the printed-circuit board 13 with which the KUSHIBA electrode 20 was formed, and the heat roller 61 can be rolled from on the imprint sheet 60, and as shown in drawing 9 (C), as hot printing of the hot printing nature dielectric 31 of the imprint sheet 60 is carried out on a printed-circuit board 13 and it is shown in drawing 9 (D), a dielectric layer 15 is formed on a printed-circuit board 13.
[0043] At the 3rd process, with a thermal transfer printer (not shown), as shown in drawing 10 (B), hot printing of the hot printing nature emitter 41 of the hot printing ribbon 40 shown in drawing 10 (A) is carried out to the imprint sheet 65. A luminous layer 16 is made to form on a dielectric layer 15 at the 4th process, as this imprint sheet 65 is carried on the printed-circuit board 13 with which the dielectric layer 15 was formed, the heat roller 61 can be rolled from on this imprint sheet 65, hot printing of the hot printing nature emitter 41 of the imprint sheet 65 is carried out and it is shown in drawing 10 (D).
[0044] According to the approach of this 2nd operation gestalt, the thermal head of a thermal transfer printer is not damaged with the irregularity of the KUSHIBA electrode 20 except that the same effectiveness as the 1st operation gestalt is acquired.
[0045] In addition, between the polar zone of the pair which consists of a transparent electrode and a back plate, although the case where the imprint member about the luminescence substrate of the format which forms a segment on one substrate was applied was explained, the imprint member in the gestalt of implementation of the above 1st and the gestalt of the 2nd operation can be applied, when creating the luminescence substrate of the format which carries out the laminating of a dielectric layer and the luminous layer.
[0046]
[Effect of the Invention] As mentioned above, according to the imprint member of claim 1 of this invention thru/or claim 4, platemaking becomes unnecessary and can create a cheap EL panel at few processes.
[0047] Especially, if exoergic control of a thermal head is performed carrying a hot printing member, carrying a thermal head on a hot printing member, and a substrate and a hot printing member, and a thermal head being displaced relatively, transition of the dielectric layer of a hot printing member and a luminous layer will be performed on a substrate, so that it may be located in order of a dielectric layer and a luminous layer on the substrate which formed many polar zone of the pair which can be energized according to the hot printing member of claim 1.
[0048] Therefore, if exoergic control is carried out connecting printer equipment to the plot device concerning the so-called personal computer and microcomputer control, setting a substrate in printer equipment, carrying out alignment of the hot printing member to a substrate, carrying it in it, and moving relatively a substrate and a hot printing member, and a thermal head, a part for the light-emitting part of a request configuration can be formed on many polar zone of a substrate, and it is not necessary to perform platemaking printing by silk printing like before.
[0049] Here, although the base material of a hot printing member forms a hot printing nature dielectric layer and a hot printing nature luminous layer in the front face of plastic film or a sheet plastic like a hot printing ribbon, it is good also considering paper, cloth, etc. as a base material.
[0050] Once the hot printing member of claim 2 imprints base material-like a dielectric layer and a luminous layer on the base material for an indirect imprint in consideration of an indirect imprint, it can form a part for the light-emitting part of a request configuration on an EL panel by imprinting the dielectric layer and luminous layer on the base material for an indirect imprint on an EL panel substrate. A thermal head is used at the time of an indirect imprint, and if a heat roller is used for the re-imprint of a up to [an EL panel substrate], even if the irregularity of the polar zone suits an EL panel substrate, an imprint will be carried out to it good.
[0051] Furthermore, the hot printing member of claim 3 and claim 4 can form the light-emitting part of a request configuration in an EL panel by being able to use it independently respectively, forming a dielectric layer on an EL panel substrate, and then forming a luminous layer on this dielectric layer.

[Translation done.]

* NOTICES *

TECHNICAL FIELD

[Field of the Invention] This invention relates to the hot printing member for forming a dielectric layer and a luminous layer and forming an EL panel about the hot printing member which imprints ink using a thermal head etc., on the substrate which formed in the front face in more detail many polar zone of the pair which can be energized mutually.

[Translation done.]

* NOTICES *

PRIOR ART

[Description of the Prior Art] From the former, what is shown in drawing 11 is known as an EL panel. This EL panel 7 formed the transparent electrode 2 in the transparence base material 1, formed the luminous layer 3 and the dielectric layer 4 in this transparent electrode 2, formed the back plate 5 of an aluminum sheet in this dielectric layer 4, and has covered it by the protective coat 6.
[0003] In this EL panel 7, as shown in drawing 12 , when indicating by luminescence only the patterns P1 and P2 and alphabetic characters M1-M3 which were drawn on the base material 1, the dielectric layer 4 and luminous layer 5 which were doubled with the configuration of patterns P1 and P2 or alphabetic characters M1-M3 are formed on the back plate 5 of an aluminum sheet by platemaking for silk printing.

[Translation done.]

* NOTICES *

EFFECT OF THE INVENTION

[Effect of the Invention] As mentioned above, according to the imprint member of claim 1 of this invention thru/or claim 4, platemaking becomes unnecessary and can create a cheap EL panel at few processes.
[0047] Especially, if exoergic control of a thermal head is performed carrying a hot printing member, carrying a thermal head on a hot printing member, and a substrate and a hot printing member, and a thermal head being displaced relatively, transition of the dielectric layer of a hot printing member and a luminous layer will be performed on a substrate, so that it may be located in order of a dielectric layer and a luminous layer on the substrate which formed many polar zone of the pair which can be energized according to the hot printing member of claim 1.
[0048] Therefore, if exoergic control is carried out connecting printer equipment to the plot device concerning the so-called personal computer and microcomputer control, setting a substrate in printer equipment, carrying out alignment of the hot printing member to a substrate, carrying it in it, and moving relatively a substrate and a hot printing member, and a thermal head, a part for the light-emitting part of a request configuration can be formed on many polar zone of a substrate, and it is not necessary to perform platemaking printing by silk printing like before.
[0049] Here, although the base material of a hot printing member forms a hot printing nature dielectric layer and a hot printing nature luminous layer in the front face of plastic film or a sheet plastic like a hot printing ribbon, it is good also considering paper, cloth, etc. as a base material.
[0050] Once the hot printing member of claim 2 imprints base material-like a dielectric layer and a luminous layer on the base material for an indirect imprint in consideration of an indirect imprint, it can form a part for the light-emitting part of a request configuration on an EL panel by imprinting the dielectric layer and luminous layer on the base material for an indirect imprint on an EL panel substrate. A thermal head is used at the time of an indirect imprint, and if a heat roller is used for the re-imprint of a up to [an EL panel substrate], even if the irregularity of the polar zone suits an EL panel substrate, an imprint will be carried out to it good.
[0051] Furthermore, the hot printing member of claim 3 and claim 4 can form the light-emitting part of a request configuration in an EL panel by being able to use it independently respectively, forming a dielectric layer on an EL panel substrate, and then forming a luminous layer on this dielectric layer.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] however -- if it is in such EL panel 7 -- the platemaking for silk printing -- required -- especially -- patterns P1 and P2 and alphabetic character M1- when changing the luminescent color for every M3, the version of the number corresponding to each patterns P1 and P2 and alphabetic characters M1-M3 must be created. For this reason, many processes were needed and there was a problem of becoming cost quantity.
[0005] This invention was made in view of the above-mentioned situation, and aims at offering the hot printing member used for the creation approach of EL substrate which makes platemaking unnecessary.

[Translation done.]

* NOTICES *

MEANS

[Means for Solving the Problem] In order to attain the above-mentioned purpose, the hot printing member of claim 1 is characterized by having formed the luminous layer on the base material and forming a dielectric layer on this luminous layer.
[0007] If exoergic control of a thermal head is performed carrying a hot printing member, carrying a thermal head on a hot printing member, and a substrate and a hot printing member, and a thermal head being displaced relatively so that it may be located in order of a dielectric layer and a luminous layer on the substrate in which many polar zone of the pair which can be energized was formed according to the hot printing member of claim 1, transition of the dielectric layer of a hot printing member and a luminous layer will be performed on a substrate.
[0008] Therefore, if exoergic control is carried out connecting printer equipment to the plot device concerning the so-called personal computer and microcomputer control, setting a substrate in printer equipment, carrying out alignment of the hot printing member to a substrate, carrying it in it, and moving relatively a substrate and a hot printing member, and a thermal head, a part for the light-emitting part of a request configuration can be formed on many polar zone of a substrate, and it is not necessary to perform platemaking printing by silk printing like before.
[0009] Here, although the base material of a hot printing member forms a hot printing nature dielectric layer and a hot printing nature luminous layer in the front face of plastic film or a sheet plastic like a hot printing ribbon, it is good also considering paper, cloth, etc. as a base material.
[0010] The hot printing member of claim 2 of this invention is characterized by having formed the dielectric layer on the base material and forming a luminous layer on this dielectric layer.
[0011] Once the hot printing member of claim 2 imprints base material-like a dielectric layer and a luminous layer on the base material for an indirect imprint in consideration of an indirect imprint, it can form a part for the light-emitting part of a request configuration on an EL panel by imprinting the dielectric layer and luminous layer on the base material for an indirect imprint on an EL panel substrate. A thermal head is used at the time of an indirect imprint, and if a heat roller is used for the re-imprint of a up to [an EL panel substrate], even if the irregularity of the polar zone suits an EL panel substrate, an imprint will be carried out to it good.
[0012] The hot printing member of claim 3 of this invention is characterized by forming a luminous layer on the surface of a base material.
[0013] The hot printing member of claim 4 of this invention is characterized by forming a dielectric layer on the surface of a base material.
[0014] The hot printing member of claim 3 and claim 4 can form the light-emitting part of a request configuration in an EL panel by being able to use it independently respectively, forming a dielectric layer on an EL panel substrate, and then forming a luminous layer on this dielectric layer.
[0015]
[Embodiment of the Invention] Hereafter, the creation approach of the EL panel using the hot printing member and it concerning the gestalt of implementation of this invention is explained based on a drawing.
In [1st operation gestalt] drawing 1 , 10 is the EL panel created by the creation approach of this invention, and a pattern A1 - A5 are printed by the screen 11 of this EL panel 10.
[0016] EL panel 10 consists of two or more KUSHIBA electrodes 20 formed on a printed-circuit board (substrate) 13 and this printed-circuit board 13 (front face), a dielectric layer 15 which covered this KUSHIBA electrode 20 and printed-circuit board 13, a luminous layer 16 formed on this dielectric layer 15, and sheet 17 grade stuck so that the whole surface of a printed-circuit board 13 might be covered from on this luminous layer 16 and the KUSHIBA electrode 20, as shown in drawing 2 . A pattern A1 - A5 are printed by this sheet 17.
[0017] The front face of a printed-circuit board 13 is divided by the segments B1-B24 of 24 arranged in the shape of a matrix as shown in drawing 3 . In addition, the shape of the shape of a honeycomb and an indeterminate form has as this segment besides the shape of a rectangle.
[0018] As shown in drawing 4 , the KUSHIBA electrode 20 which consists of 1st KUSHIBA electrode (1st electrode) 20A and 2nd KUSHIBA electrode (2nd electrode) 20B is formed in the segment B1. This KUSHIBA electrode 20 is formed of etching.
[0019] 1st KUSHIBA electrode 20A has two or more KUSHIBA polar-zone 20Ab(s) prolonged rightward in parallel, respectively from base-electrode section 20Aa prolonged in the vertical direction (setting to drawing 4), and this base-electrode section 20Aa.
[0020] 2nd KUSHIBA electrode 20B has base-electrode section 20Ba prolonged in the vertical direction (setting to drawing 4), and two or more KUSHIBA polar-zone 20Bb(s) prolonged rightward in parallel from this base-electrode section 20Ba, respectively, and KUSHIBA polar-zone 20Ab and KUSHIBA polar-zone 20Bb are arranged in parallel by turns. That is, KUSHIBA polar-zone 20Ab and KUSHIBA polar-zone 20Bb are installed.
[0021] The clearance between KUSHIBA polar-zone 20Ab and the KUSHIBA electrode 20 section Bb is about 100 microns, and the width of face of KUSHIBA polar-zone 20Ab and 20Bb is about 100 microns.
[0022] the same -- each -- the KUSHIBA electrode 20 which consists of 1st KUSHIBA electrode (1st electrode) 20A and 2nd KUSHIBA electrode (2nd electrode) 20B is formed in segment B-2-B24.
[0023] Alternating voltage can be made to impress independently according to each segment B1 - B24 between 1st KUSHIBA

electrode 20A of each segments B1-B24, and 2nd KUSHIBA electrode 20B now.
[0024] Moreover, as shown in drawing 3 , the dielectric layers 15a-15e which covered the 1st and 2nd KUSHIBA electrodes 20A and 20B according to a pattern A1 - A5 are formed in the front face of a printed-circuit board 13. That is, according to a pattern A1 - A5, dielectric layers 15a-15e are formed on the electrode substrate 50 for EL panels. Luminous layers 16a-16e are formed on these dielectric layers 15a-15e. For example, luminous layer 16b is formed on dielectric layer 15b which covered the 1st and 2nd KUSHIBA electrodes 20A and 20B to the segment B9 as shown in drawing 5 , and this dielectric layer 15b.
[0025] A dielectric layer 15 and a luminous layer 16 are formed by carrying out hot printing of the hot printing nature dielectric (dielectric layer) 31 of the hot printing ribbons 30 and 40 as a hot printing member shown in drawing 6 - drawing 8 , and the hot printing nature emitter (luminous layer) 41 with a thermal transfer printer (not shown).
[0026] The hot printing ribbon 30 shown in drawing 6 forms the hot printing nature dielectric 31 in the front face of the base material 32 which consists of a sheet plastic or plastic film by spreading etc. The hot printing nature dielectric 31 mixes dielectrics, such as for example, titanic-acid-ized barium, and binders, such as polyester resin, with an ethylene system organic solvent.
[0027] The hot printing ribbon 40 shown in drawing 7 forms the hot printing nature emitter 41 in the front face of the base material 42 which consists of a sheet plastic or plastic film by spreading etc. The hot printing nature illuminant 41 mixes luminescent matter, such as for example, oxidization silicon zinc + manganese, and binders, such as polyester resin, with an ethylene system organic solvent.
[0028] The hot printing ribbon 43 shown in drawing 8 forms the hot printing nature emitter 41 in the front face of the base material 42 which consists of a sheet plastic or plastic film by spreading etc., and forms the hot printing nature dielectric 31 by spreading etc. on this hot printing nature emitter 41.
[0029] in addition, the thermal head according to the irregularity of the KUSHIBA electrode 20 when imprinting by the hot printing ribbon 43 and the thermal head to the field in which the KUSHIBA electrode 20 of a printed-circuit board 13 was formed -- getting damaged -- etc. -- when feeling uneasy, the configuration of a dielectric 31 and an emitter 41 is once imprinted to the plastic film or the sheet plastic for a re-imprint by indirect imprint. In this case, in order to contact a dielectric 31 to the KUSHIBA electrode 20 and to form an illuminant 41 in a dielectric 31 finally, at an indirect imprint process, on the sheet plastic for an indirect imprint (or film), stratum disjunctum is formed, the layer of an illuminant 41 is formed on that stratum disjunctum, and then the layer of a dielectric 31 is formed.
[0030] When adopting this indirect replica method, a hot printing ribbon forms the layer of a dielectric 31 on a base material 42, forms the illuminant 41 on the layer of a dielectric 31, and carries out the indirect imprint of an illuminant 41 and the dielectric 31 for the hot printing ribbon for this indirect imprint at the sheet plastic for an indirect imprint, or plastic film using a thermal head.
[0031] Next, the sheet plastic for an indirect imprint or plastic film is arranged on the KUSHIBA electrode 20 of a printed-circuit board 13 so that a dielectric 31 may contact the KUSHIBA electrode 20, and heating pressurization is carried out with a hot printing roller. In addition, a flexible sheet plastic with thermal conductivity etc. may be made to intervene between this hot printing roller and printed-circuit board 13.
[0032] A broad sheet-like hot printing ribbon is cut according to a pattern by the cutting plotter, it is stuck by pressure with a hot printing roller, and a dielectric layer and a luminous layer may be formed.
[0033] So that it may be located in order of the layer (dielectric layer) of a dielectric 31, and the layer (luminous layer) of an emitter 41 on the printed-circuit board 13 (substrate) in which many KUSHIBA electrodes 20 (polar zone of a pair) which can be energized were formed according to this hot printing ribbon Transition of the layer of a dielectric 31 and the layer of an emitter 41 is performed on a printed-circuit board 13 by performing exoergic control of a thermal head, carrying the hot printing ribbon 43, carrying a thermal head on the hot printing ribbon 43, and a substrate and a hot printing member, and a thermal head being displaced relatively.
[0034] Therefore, printer equipment is connected to the plot device concerning the so-called personal computer and microcomputer control. A printed-circuit board 13 is set in the equipment to which printer equipment or a thermal head can be moved. If exoergic control is carried out carrying out alignment of the hot printing ribbon 43 to a printed-circuit board 13, carrying it in it, and moving relatively a printed-circuit board 13 and the hot printing ribbon 43, and a thermal head to it The derivative and emitter of a request configuration can be formed on many KUSHIBA polar zone 20 of a printed-circuit board 13, and it is not necessary to perform platemaking printing by silk printing like before.
[0035] Here, although the base material of the hot printing ribbon 43 forms the layer of a dielectric 31, and the layer of an emitter 41 in the front face of plastic film or a sheet plastic like a hot printing ribbon, it is good also considering paper, cloth, etc. as a base material.
[0036] Moreover, when an indirect imprint is taken into consideration, once imprinting base material-like a dielectric layer and a luminous layer on the base material for an indirect imprint, a part for the light-emitting part of a request configuration can be formed on an EL panel by imprinting the dielectric layer and luminous layer on the base material for an indirect imprint on an EL panel substrate. A thermal head is used at the time of an indirect imprint, and if a heat roller is used, even if the irregularity of the polar zone is in an EL panel substrate, an imprint will be carried out to the re-imprint of a up to [an EL panel substrate] good.
[0037] Furthermore, drawing 6 and the hot printing ribbons 30 and 40 of drawing 7 can form the light-emitting part of a request configuration in an EL panel by being able to use it independently respectively, forming the layer of a dielectric 31 on the EL panel substrate 10, and then forming the layer of an emitter 41 on the layer of this dielectric 31.
[0038] Next, the creation process of EL panel 10 is explained. First, the creation sequence of EL panel 10 forms the KUSHIBA electrode 20 in the front face of a printed-circuit board 13, next forms a dielectric layer 15 and a luminous layer 16 in the front face with a thermal transfer printer. And the sheet 17 for protection is stuck on the last.
[0039] Thus, since a dielectric layer 15 and a luminous layer 16 are formed with a thermal transfer printer and a hot printing ribbon, by printing, the pattern of a free configuration, the dielectric layer 15 of an alphabetic character, and a luminous layer 16 can be formed, and it can form very easily in a short time. That is, platemaking becomes unnecessary and can create cheap EL panel 10 at few processes.
[0040] If alternating voltage is impressed between 1st KUSHIBA electrode 20A and 2nd KUSHIBA electrode 20B, as shown in drawing 2 , alternating current will flow in the direction shown with a broken line, and EL panel 10 created as mentioned above will emit light, as a luminous layer 16 shows by the arrow head of a continuous line by this alternating current.
[0041] each -- segment B6-B10, B12, B13, B15-B17, and B21 and B -- mutually-independent [of the luminous layers 16a-16e of each pattern A1 - A5] can be carried out, and they can be made to emit light by controlling the alternating voltage impressed to the KUSHIBA electrode 20 for every 22 That is, light can be made to be able to emit independently for every pattern A1 - A5, and each

pattern A1 - A5 can be made to emit light by the free luminescence pattern.
[2nd operation gestalt] drawing 9 and drawing 10 show the 2nd operation gestalt of the creation approach of EL panel 10.
[0042] At the 1st process, with a thermal transfer printer (not shown), as shown in drawing 9 (B), hot printing of the hot printing nature dielectric 31 of the hot printing ribbon 30 shown in drawing 9 (A) is carried out to the imprint sheet 60. And at the 2nd process, this imprint sheet 60 is placed on the printed-circuit board 13 with which the KUSHIBA electrode 20 was formed, and the heat roller 61 can be rolled from on the imprint sheet 60, and as shown in drawing 9 (C), as hot printing of the hot printing nature dielectric 31 of the imprint sheet 60 is carried out on a printed-circuit board 13 and it is shown in drawing 9 (D), a dielectric layer 15 is formed on a printed-circuit board 13.
[0043] At the 3rd process, with a thermal transfer printer (not shown), as shown in drawing 10 (B), hot printing of the hot printing nature emitter 41 of the hot printing ribbon 40 shown in drawing 10 (A) is carried out to the imprint sheet 65. A luminous layer 16 is made to form on a dielectric layer 15 at the 4th process, as this imprint sheet 65 is carried on the printed-circuit board 13 with which the dielectric layer 15 was formed, the heat roller 61 can be rolled from on this imprint sheet 65, hot printing of the hot printing nature emitter 41 of the imprint sheet 65 is carried out and it is shown in drawing 10 (D).
[0044] According to the approach of this 2nd operation gestalt, the thermal head of a thermal transfer printer is not damaged with the irregularity of the KUSHIBA electrode 20 except that the same effectiveness as the 1st operation gestalt is acquired.
[0045] In addition, between the polar zone of the pair which consists of a transparent electrode and a back plate, although the case where the imprint member about the luminescence substrate of the format which forms a segment on one substrate was applied was explained, the imprint member in the gestalt of implementation of the above 1st and the gestalt of the 2nd operation can be applied, when creating the luminescence substrate of the format which carries out the laminating of a dielectric layer and the luminous layer.

[Translation done.]

* NOTICES * .

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the explanatory view having shown the EL panel created by the creation approach of this invention.
[Drawing 2] It is the partial expanded sectional view having shown the configuration of the EL panel of drawing 1 .
[Drawing 3] It is the explanatory view having shown the printed circuit board used for the EL panel of drawing 1 .
[Drawing 4] It is the explanatory view having shown the KUSHIBA electrode formed in the printed circuit board of drawing 3 .
[Drawing 5] It is the explanatory view having shown the dielectric layer formed on the KUSHIBA electrode, and the luminous layer.
[Drawing 6] It is the explanatory view having shown the configuration of the ink ribbon for dielectric layers.
[Drawing 7] It is the explanatory view having shown the configuration of the ink ribbon for luminous layers.
[Drawing 8] It is the explanatory view having shown the configuration of the ink ribbon which forms a dielectric layer and a luminous layer.
[Drawing 9] (A) It is the explanatory view of the ink ribbon which has a hot printing nature dielectric.
(B) It is the explanatory view having shown the condition that hot printing of the dielectric was carried out on the imprint sheet.
(C) It is the explanatory view having shown how to carry out hot printing of the dielectric of an imprint sheet on a printed-circuit board.

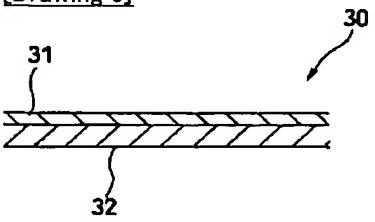
(D) It is the explanatory view having shown the condition that the dielectric layer was formed on the printed-circuit board.
[Drawing 10] (A) It is the explanatory view of the ink ribbon which has a hot printing nature illuminant.
(B) It is the explanatory view having shown the condition that hot printing of the hot printing nature emitter was carried out on the imprint sheet.
(C) It is the explanatory view having shown how to carry out hot printing of the hot printing nature emitter of an imprint sheet on a printed-circuit board.
(D) It is the explanatory view having shown the condition that the luminous layer was formed on the dielectric layer of a printed-circuit board.
[Drawing 11] It is the explanatory view having shown the configuration of the conventional EL panel.
[Drawing 12] It is the explanatory view having shown the conventional EL panel.
[Description of Notations]
13 Printed-circuit Board (Substrate)
20A The 1st KUSHIBA electrode (the 1st electrode)
20B The 2nd KUSHIBA electrode (the 2nd electrode)
30, 40, 43 Hot printing ribbon
31 Hot Printing Nature Dielectric
32 42 Base material
41 Hot Printing Nature Emitter

[Translation done.]

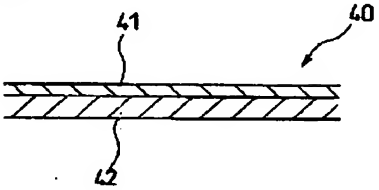
* NOTICES *

DRAWINGS

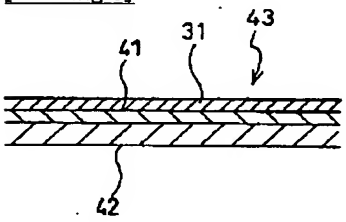
[Drawing 6]



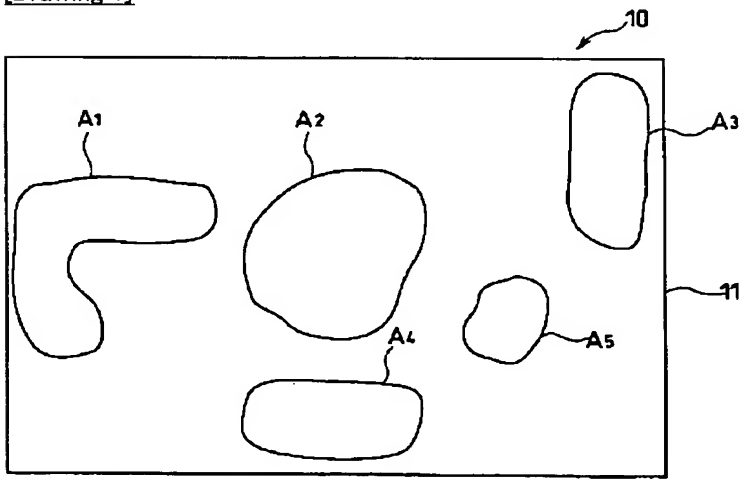
[Drawing 7]



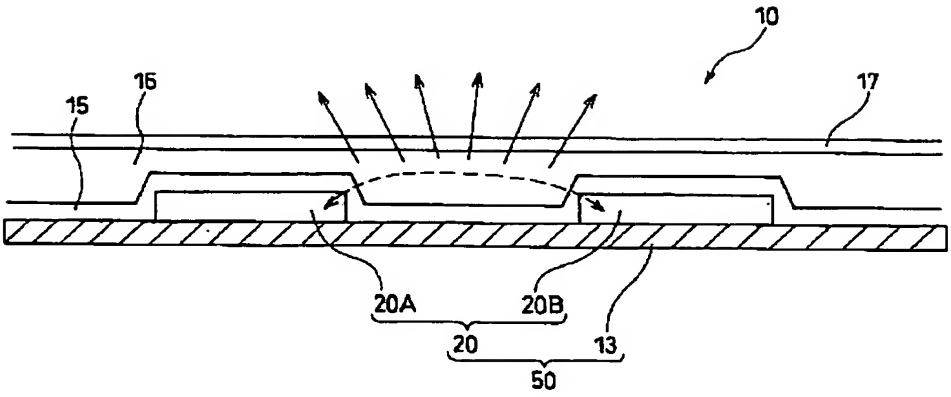
[Drawing 8]



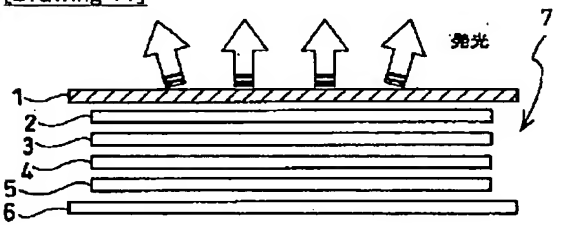
[Drawing 1]



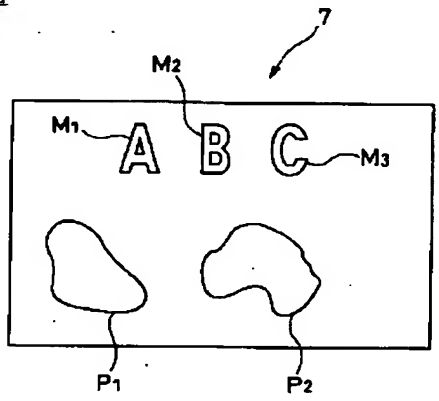
[Drawing 2]



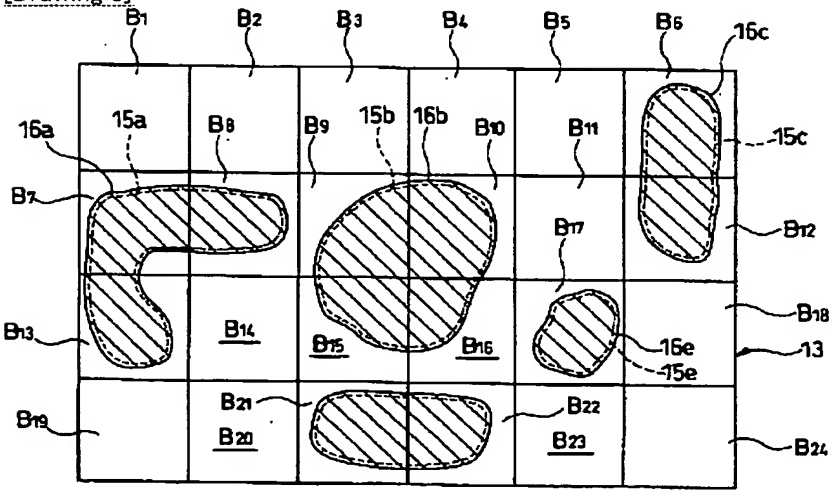
[Drawing 11]



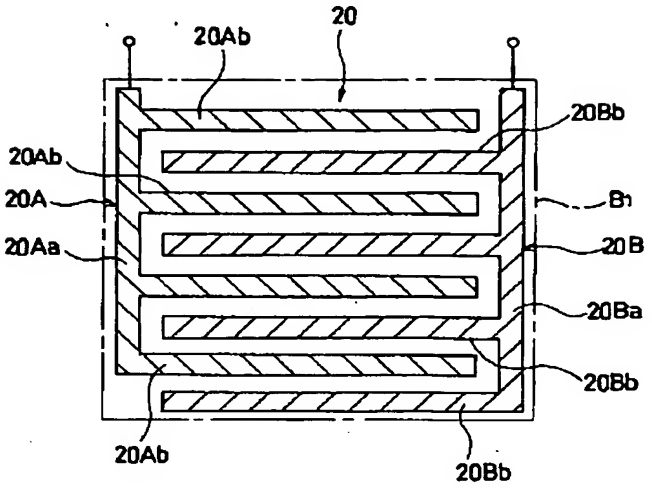
[Drawing 12]



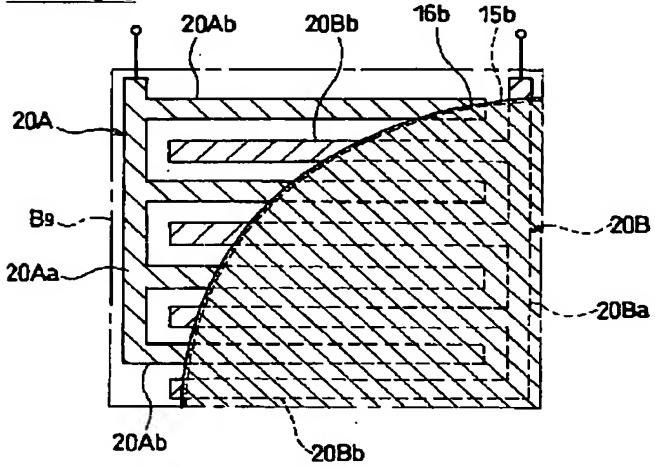
[Drawing 3]



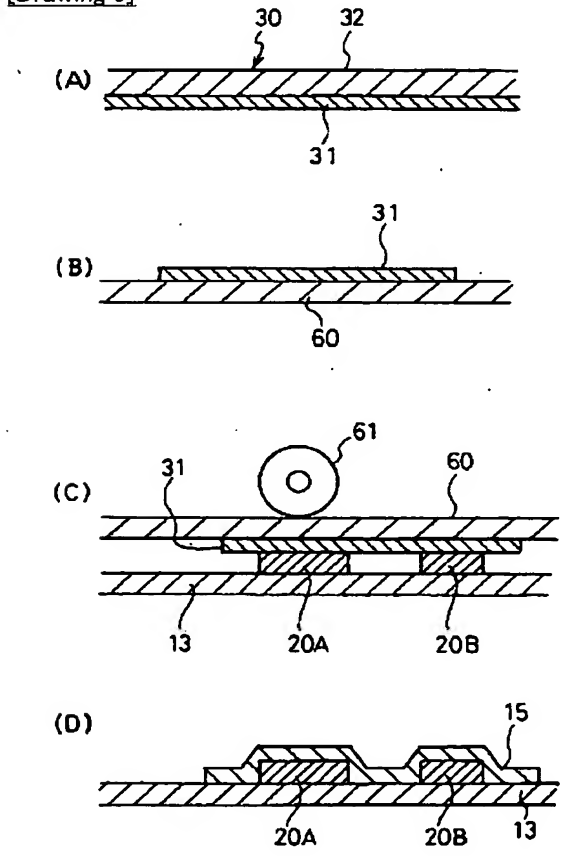
[Drawing 4]



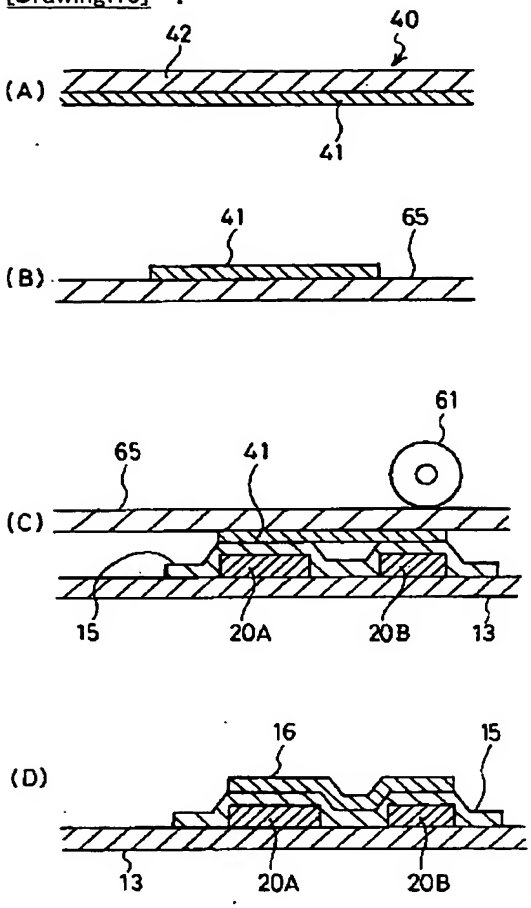
[Drawing 5]



[Drawing 9]



[Drawing.10]



[Translation done.]

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Ｈ０５Ｂ　33/14		Ｈ０５Ｂ　33/14	Ｚ	

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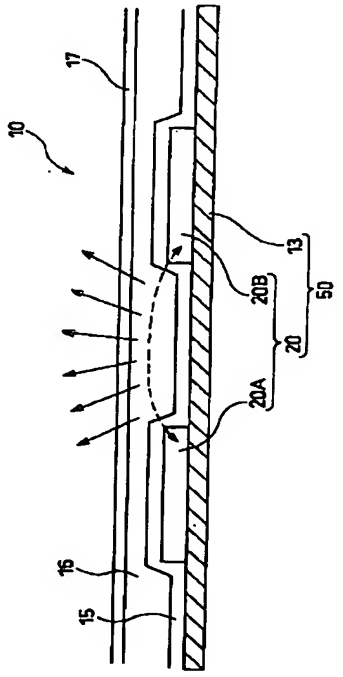
3K007 AB18 BB07 CC04 EC01 FA01

(54)【発明の名称】　熱転写部材

(57)【要約】
【課題】　製版を不要とするＥＬ基板の作成方法を提供する。
【解決手段】　プリント配線基板１３の表面に形成した第１，第２クシバ電極２０Ａ，２０Ｂに、誘電層１５及び発光層１６を形成してＥＬ基板１０を作成するために、熱転写リボン４３に誘電体３１の層および発光体４１の層を形成した。



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【特許請求の範囲】

【請求項１】基材上に発光層を形成し、この発光層の上に誘電層とを形成したことを特徴とする熱転写部材。

【請求項２】基材上に誘電層を形成し、この誘電層の上に発光層とを形成したことを特徴とする熱転写部材。

【請求項３】基材の表面に発光層を形成したことを特徴とする熱転写部材。

【請求項４】基材の表面に誘電層を形成したことを特徴とする熱転写部材。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】この発明は、サーマルヘッド等を用いてインクを転写する熱転写部材に関し、更に詳しくは、表面に互いに通電可能な一対の電極部を多数形成した基板上に誘電層と発光層とを形成してＥＬパネルを形成するための熱転写部材に関する。

【０００２】

【従来の技術】従来から、ＥＬパネルとしては、図１１に示すものが知られている。このＥＬパネル７は、透明基材１に透明電極２を形成し、この透明電極２に発光層３、誘電層４を形成し、この誘電層４にアルミシートの背面電極５を設け、保護膜６によって覆っている。

【０００３】かかるＥＬパネル７では、図１２に示すように、支持体１に描いた絵柄Ｐ1，Ｐ2や文字M1～M3だけを発光表示させる場合、絵柄Ｐ1，Ｐ2や文字M1～M3の形状に合わせた誘電層４および発光層５をシルク印刷用の製版によってアルミシートの背面電極５上に形成している。

【０００４】

【発明が解決しようとする課題】しかしながら、このようなＥＬパネル７にあっては、シルク印刷用の製版が必要であり、特に、絵柄Ｐ1，Ｐ2や文字M1～M3毎に発光色を変える場合、それぞれの絵柄Ｐ1，Ｐ2や文字M1～M3に対応した数の版を作成しなければならない。このため、多くの工程が必要となり、コスト高になってしまう等の問題があった。

【０００５】この発明は、上記事情に鑑みてなされたもので、製版を不要とするＥＬ基板の作成方法に用いる熱転写部材を提供することを目的とする。

【０００６】

【課題を解決するための手段】上記目的を達成するため、請求項１の熱転写部材は、基材上に発光層を形成し、この発光層の上に誘電層とを形成したことを特徴とする。

【０００７】請求項１の熱転写部材によれば、通電可能な一対の電極部を多数形成した基板上に、誘電層・発光層の順で位置するように、熱転写部材を載せ、熱転写部材の上にサーマルヘッドを載せ、基板及び熱転写部材とサーマルヘッドとを相対移動しつつサーマルヘッドの発熱制御を行えば、基板上に熱転写部材の誘電層及び発光層の転移が行われる。

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【０００８】従って、いわゆるパーソナルコンピュータやマイクロコンピュータ制御にかかる作図機器にプリンター装置を接続し、プリンター装置に基板をセットし、基板に熱転写部材を位置合わせして搭載し、基板及び熱転写部材とサーマルヘッドとを相対的に移動しつつ発熱制御すると、基板の多数の電極部の上に、所望形状の発光部分を形成することができ、従来のようなシルク印刷による製版印刷を行わないで済む。

【０００９】ここで、熱転写部材の基材は、熱転写リボンのようにプラスチックフィルム或いはプラスチックシートの表面に熱転写性誘電層及び熱転写性発光層を形成したものであるが、紙・布等を基材としても良い。

【００１０】本発明の請求項２の熱転写部材は、基材上に誘電層を形成し、この誘電層の上に発光層とを形成したことを特徴とする。

【００１１】請求項２の熱転写部材は、間接転写を考慮したものであり、基材状の誘電層及び発光層を一度間接転写用基材上に転写した後、間接転写用基材上の誘電層及び発光層をＥＬパネル基板上に転写することにより、ＥＬパネル上に所望形状の発光部分を形成することができる。間接転写のときにサーマルヘッドを用い、ＥＬパネル基板上への再転写には、熱ローラを用いると、ＥＬパネル基板に電極部の凹凸が合っても転写が良好に行われる。

【００１２】本発明の請求項３の熱転写部材は、基材の表面に発光層を形成したことを特徴とする。

【００１３】本発明の請求項４の熱転写部材は、基材の表面に誘電層を形成したことを特徴とする。

【００１４】請求項３、請求項４の熱転写部材は、各々単独で使用し得るものであり、ＥＬパネル基板上に誘電層を形成し、次にこの誘電層の上に発光層を形成することにより、ＥＬパネルに所望形状の発光部を形成できる。

【００１５】

【発明の実施の形態】以下、この発明の実施の形態に係わる熱転写部材及びそれを用いたＥＬパネルの作成方法を図面に基づいて説明する。

［第１実施形態］図１において、１０はこの発明の作成方法によって作成されたＥＬパネルであり、このＥＬパネル１０の表示面１１には絵柄Ａ1～Ａ5が印刷されている。

【００１６】ＥＬパネル１０は、図２に示すように、プリント配線基板（基板）１３と、このプリント配線基板１３の上（表面）に形成された複数のクシバ電極２０と、このクシバ電極２０およびプリント配線基板１３を覆った誘電層１５と、この誘電層１５の上に形成された発光層１６と、この発光層１６およびクシバ電極２０の上からプリント配線基板１３の全面を覆うように貼られたシート１７等とから構成されている。絵柄Ａ1～Ａ5は

このシート１７に印刷されているものである。

【００１７】プリント配線基板１３の表面は、図３に示すように、マトリックス状に配列された２４のセグメントB1～B24に区画されている。なおこのセグメントは矩形状の他にハニカム状、或いは不定形状でも良い。

【００１８】セグメントB1には、図４に示すように、第１クシバ電極（第１電極）２０Ａと第２クシバ電極（第２電極）２０Ｂとからなるクシバ電極２０が形成されている。このクシバ電極２０は、エッチングによって形成されている。

【００１９】第１クシバ電極２０Ａは、上下方向（図４において）に延びたベース電極部２０Aaと、このベース電極部２０Aaから右方向へそれぞれ平行に延びた複数のクシバ電極部２０Abとを有している。

【００２０】第２クシバ電極２０Ｂは、上下方向（図４において）に延びたベース電極部２０Baと、このベース電極部２０Baから右方向へそれぞれ平行に延びた複数のクシバ電極部２０Bbとを有しており、クシバ電極部２０Abとクシバ電極部２０Bbは交互に平行に配設されている。すなわち、クシバ電極部２０Abとクシバ電極部２０Bbは並設されている。

【００２１】クシバ電極部２０Abとクシバ電極２０部Bbとの間の離間距離は約１００ミクロンであり、クシバ電極部２０Ab，２０Bbの幅は約１００ミクロンである。

【００２２】同様に、各セグメントB2～B24には、第１クシバ電極（第１電極）２０Ａと第２クシバ電極（第２電極）２０Ｂとからなるクシバ電極２０が形成されている。

【００２３】各セグメントB1～B24の第１クシバ電極２０Ａと第２クシバ電極２０Ｂ間に、各セグメントB1～B24別に独立して交流電圧を印加させることができるようになっている。

【００２４】また、プリント配線基板１３の表面には、図３に示すように、絵柄A1～A5に合わせて第１，第２クシバ電極２０A，２０Ｂを覆った誘電層１５a～１５eが形成されている。すなわち、ＥＬパネル用電極基板５０上に絵柄A1～A5に合わせて誘電層１５a～１５eが形成されている。この誘電層１５a～１５eの上に発光層１６a～１６eが形成されている。例えば、セグメントB9には、図５に示すように第１，第２クシバ電極２０A，２０Ｂを覆った誘電層１５bと、この誘電層１５bの上に発光層１６bとが形成されている。

【００２５】誘電層１５および発光層１６は、図６～図８に示す熱転写部材としての熱転写リボン３０，４０の熱転写性誘電体（誘電層）３１，熱転写性発光体（発光層）４１を熱転写プリンタ(図示せず)によって熱転写することにより形成する。

【００２６】図６に示す熱転写リボン３０は、プラスチックシート或いはプラスチックフィルムからなる基材３

２の表面に熱転写性誘電体３１を塗布などにより形成したものである。熱転写性誘電体３１は、例えばチタン酸化バリウム等の誘電体とポリエステル樹脂等のバインダーとをエチレン系有機溶剤により混合したものである。

【００２７】図７に示す熱転写リボン４０は、プラスチックシート或いはプラスチックフィルムからなる基材４２の表面に、熱転写性発光体４１を塗布などにより形成したものである。熱転写性発光体４１は、例えば酸化珪素亜鉛＋マンガン等の発光性物質とポリエステル樹脂等のバインダーとをエチレン系有機溶剤により混合したものである。

【００２８】図８に示す熱転写リボン４３は、プラスチックシート或いはプラスチックフィルムからなる基材４２の表面に、熱転写性発光体４１を塗布などにより形成し、この熱転写性発光体４１の上に熱転写性誘電体３１を塗布などにより形成したものである。

【００２９】なお、プリント配線基板１３のクシバ電極２０が形成された面に、熱転写リボン４３とサーマルヘッドにより転写するときに、クシバ電極２０の凹凸によるサーマルヘッドの傷付き等が懸念される場合には、間接転写により、一度、再転写用のプラスチックフィルム或いはプラスチックシートに誘電体３１及び発光体４１の形状を転写する。この場合、誘電体３１をクシバ電極２０に接触させ、誘電体３１に発光体４１を最終的に形成するために、間接転写工程では、間接転写用プラスチックシート（或いはフィルム）上に、剥離層を形成してその剥離層の上に発光体４１の層を形成し、次に誘電体３１の層を形成する。

【００３０】この間接転写法を採用する場合、熱転写リボンは、基材４２の上に、誘電体３１の層を形成し、誘電体３１の層の上に発光体４１を形成しておき、この間接転写用の熱転写リボンをサーマルヘッドを用いて、間接転写用プラスチックシート或いはプラスチックフィルムに、発光体４１及び誘電体３１を間接転写する。

【００３１】次に、間接転写用プラスチックシート或いはプラスチックフィルムを、誘電体３１がクシバ電極２０に接触するように、プリント配線基板１３のクシバ電極２０の上に配置し、熱転写ローラにより加熱加圧する。なお、この熱転写ローラとプリント配線基板１３との間に熱伝導性のある柔軟なプラスチックシート等を介在させても良い。

【００３２】シート状の幅広の熱転写リボンをカッティングプロッタで絵柄に合わせてカットし、熱転写ローラで圧着して誘電層・発光層を形成しても良い。

【００３３】この熱転写リボンによれば、通電可能なクシバ電極２０（一対の電極部）を多数形成したプリント配線基板１３（基板）上に、誘電体３１の層（誘電層）及び発光体４１の層（発光層）の順で位置するように、熱転写リボン４３を載せ、熱転写リボン４３の上にサーマルヘッドを載せ、基板及び熱転写部材とサーマルヘッ

ドとを相対移動しつつサーマルヘッドの発熱制御を行うことによって、プリント配線基板１３の上に誘電体３１の層及び発光体４１の層の転移が行われる。

【００３４】従って、いわゆるパーソナルコンピュータやマイクロコンピュータ制御にかかる作図機器にプリンター装置を接続し、プリンター装置或いはサーマルヘッドを移動させることができる装置にプリント配線基板１３をセットし、プリント配線基板１３に熱転写リボン４３を位置合わせして搭載し、プリント配線基板１３及び熱転写リボン４３とサーマルヘッドとを相対的に移動しつつ発熱制御すると、プリント配線基板１３の多数のクシバ電極部２０の上に、所望形状の誘導体及び発光体を形成することができ、従来のようなシルク印刷による製版印刷を行わないで済む。

【００３５】ここで、熱転写リボン４３の基材は、熱転写リボンのようにプラスチックフィルム或いはプラスチックシートの表面に誘電体３１の層及び発光体４１の層を形成したものであるが、紙・布等を基材としても良い。

【００３６】また、間接転写を考慮した場合には、基材状の誘電層及び発光層を一度間接転写用基材上に転写した後、間接転写用基材上の誘電層及び発光層をＥＬパネル基板上に転写することにより、ＥＬパネル上に所望形状の発光部分を形成することができる。間接転写のときにサーマルヘッドを用い、ＥＬパネル基板上への再転写には、熱ローラを用いると、ＥＬパネル基板に電極部の凹凸があっても転写が良好に行われる。

【００３７】更に、図６、図７の熱転写リボン３０、４０は、各々単独で使用し得るものであり、ＥＬパネル基板１０上に誘電体３１の層を形成し、次にこの誘電体３１の層の上に発光体４１の層を形成することにより、ＥＬパネルに所望形状の発光部を形成できる。

【００３８】次に、ＥＬパネル１０の作成工程について説明する。ＥＬパネル１０の作成順序は、先ず、プリント配線基板１３の表面にクシバ電極２０を形成し、次に、その表面に熱転写プリンタによって誘電層１５および発光層１６を形成する。そして、最後に保護用のシート１７を貼るものである。

【００３９】このように、熱転写プリンタ及び熱転写リボンによって誘電層１５および発光層１６を形成するものであるから、印字によって自由な形状の絵柄や文字の誘電層１５および発光層１６を形成することができ、非常に簡単に短時間で形成することができる。すなわち、製版が不要となり、少ない工程で安価なＥＬパネル１０を作成することができる。

【００４０】上記のように作成されたＥＬパネル１０は、第１クシバ電極２０Ａと第２クシバ電極２０Ｂ間に交流電圧を印加すると、図２に示すように破線で示す方向に交流電流が流れ、この交流電流により発光層１６が実線の矢印で示すように発光する。

【００４１】各セグメントB6～B10, B12, B13, B15～B17, B21, B22毎にクシバ電極２０に印加する交流電圧を制御することにより、各絵柄Ａ1～Ａ5の発光層１６ａ～１６ｅを互いに独立して発光させることができる。すなわち、各絵柄Ａ1～Ａ5毎に独立して発光させることができ、各絵柄Ａ1～Ａ5を自由な発光パターンで発光させることができる。

［第２実施形態］図９および図１０は、ＥＬパネル１０の作成方法の第２実施形態を示したものである。

【００４２】第１工程では、図９(Ａ)に示す熱転写リボン３０の熱転写性誘電体３１を熱転写プリンタ(図示せず)によって、図９(Ｂ)に示すように転写シート６０に熱転写させる。そして、第２工程では、この転写シート６０をクシバ電極２０が形成されたプリント配線基板１３の上に置き、図９(Ｃ)に示すように転写シート６０の上から熱ローラ６１を転がせて転写シート６０の熱転写性誘電体３１をプリント配線基板１３上に熱転写させ、図９(Ｄ)に示すように、プリント配線基板１３上に誘電層１５を形成する。

【００４３】第３工程では、図１０(Ａ)に示す熱転写リボン４０の熱転写性発光体４１を熱転写プリンタ(図示せず)によって、図１０(Ｂ)に示すように転写シート６５に熱転写させる。第４工程では、この転写シート６５を誘電層１５が形成されたプリント配線基板１３上に載せ、この転写シート６５の上から熱ローラ６１を転がせて転写シート６５の熱転写性発光体４１を熱転写させ、図１０(Ｄ)に示すように、誘電層１５の上に発光層１６を形成させる。

【００４４】この第２実施形態の方法によれば、第１実施形態と同様な効果が得られる他に、熱転写プリンタのサーマルヘッドをクシバ電極２０の凹凸によって傷めてしまうことがない。

【００４５】なお、上記第１の実施の形態及び第２の実施の形態における転写部材は、セグメントを１枚の基板上に形成する形式の発光基板についての転写部材を適用する場合について説明したが、透明電極と背面電極からなる一対の電極部の間に、誘電層及び発光層を積層する形式の発光基板を作成する場合においても適用できる。

【００４６】

【発明の効果】上述のように、本発明の請求項１乃至請求項４の転写部材によれば、製版が不要となり、少ない工程で安価なＥＬパネルを作成することができる。

【００４７】特に、請求項１の熱転写部材によれば、通電可能な一対の電極部を多数形成した基板上に、誘電層・発光層の順で位置するように、熱転写部材を載せ、熱転写部材の上にサーマルヘッドを載せ、基板及び熱転写部材とサーマルヘッドとを相対移動しつつサーマルヘッドの発熱制御を行えば、基板上に熱転写部材の誘電層及び発光層の転移が行われる。

【００４８】従って、いわゆるパーソナルコンピュータ

やマイクロコンピュータ制御にかかる作図機器にプリンター装置を接続し、プリンター装置に基板をセットし、基板に熱転写部材を位置合わせして搭載し、基板及び熱転写部材とサーマルヘッドとを相対的に移動しつつ発熱制御すると、基板の多数の電極部の上に、所望形状の発光部分を形成することができ、従来のようなシルク印刷による製版印刷を行わないで済む。

【００４９】ここで、熱転写部材の基材は、熱転写リボンのようにプラスチックフィルム或いはプラスチックシートの表面に熱転写性誘電層及び熱転写性発光層を形成したものであるが、紙・布等を基材としても良い。

【００５０】請求項２の熱転写部材は、間接転写を考慮したものであり、基材状の誘電層及び発光層を一度間接転写用基材上に転写した後、間接転写用基材上の誘電層及び発光層をＥＬパネル基板上に転写することにより、ＥＬパネル上に所望形状の発光部分を形成することができる。間接転写のときにサーマルヘッドを用い、ＥＬパネル基板上への再転写には、熱ローラを用いると、ＥＬパネル基板に電極部の凹凸が合っても転写が良好に行われる。

【００５１】更に、請求項３、請求項４の熱転写部材は、各々単独で使用し得るものであり、ＥＬパネル基板上に誘電層を形成し、次にこの誘電層の上に発光層を形成することにより、ＥＬパネルに所望形状の発光部を形成できる。

【図面の簡単な説明】

【図１】この発明の作成方法で作成したＥＬパネルを示した説明図である。

【図２】図１のＥＬパネルの構成を示した部分拡大断面図である。

【図３】図１のＥＬパネルに使用したプリント基板を示した説明図である。

【図４】図３のプリント基板に形成されたクシバ電極を示した説明図である。

【図５】クシバ電極上に形成された誘電層と発光層を示した説明図である。

【図６】誘電層用のインクリボンの構成を示した説明図である。

【図７】発光層用のインクリボンの構成を示した説明図である。

【図８】誘電層および発光層を形成するインクリボンの構成を示した説明図である。

【図９】（Ａ）熱転写性誘電体を有するインクリボンの説明図である。

（Ｂ）転写シートに誘電体が熱転写された状態を示した説明図である。

（Ｃ）プリント配線基板上に転写シートの誘電体を熱転写する方法を示した説明図である。

（Ｄ）プリント配線基板上に誘電層が形成された状態を示した説明図である。

【図１０】（Ａ）熱転写性発光体を有するインクリボンの説明図である。

（Ｂ）転写シートに熱転写性発光体が熱転写された状態を示した説明図である。

（Ｃ）プリント配線基板上に転写シートの熱転写性発光体を熱転写する方法を示した説明図である。

（Ｄ）プリント配線基板の誘電層の上に発光層が形成された状態を示した説明図である。

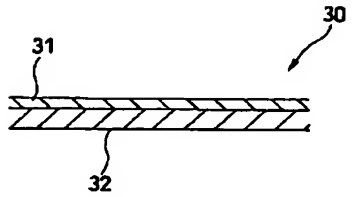
【図１１】従来のＥＬパネルの構成を示した説明図である。

【図１２】従来のＥＬパネルを示した説明図である。

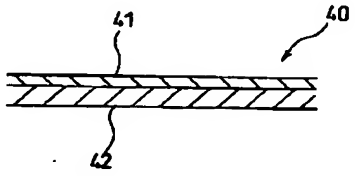
【符号の説明】

１３	プリント配線基板（基板）
２０Ａ	第１クシバ電極（第１電極）
２０Ｂ	第２クシバ電極（第２電極）
３０、４０、４３	熱転写リボン
３１	熱転写性誘電体
３２、４２	基材
４１	熱転写性発光体

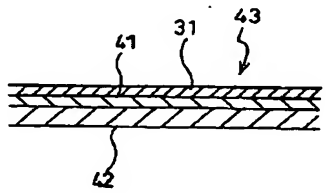
【図６】



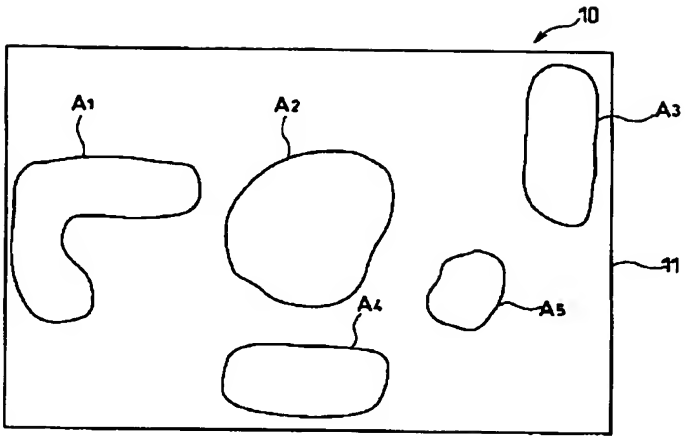
【図７】



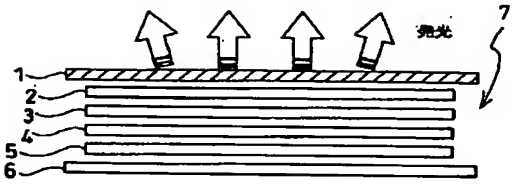
【図８】



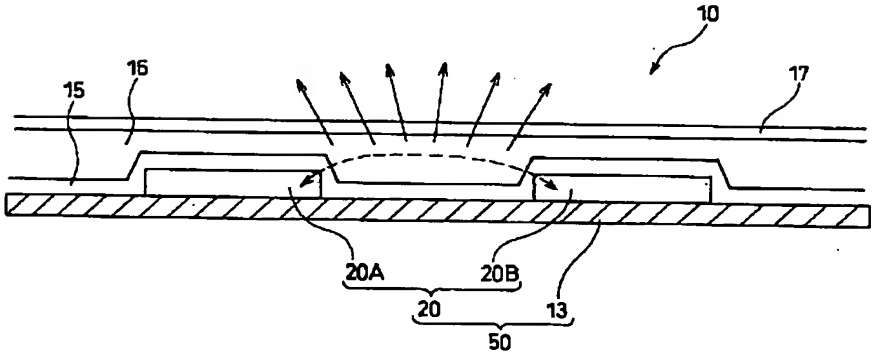
【図１】


10
A1
A2
A3
A4
A5
11

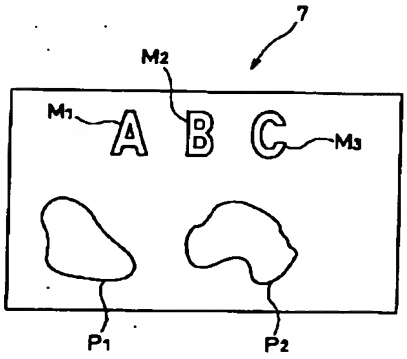
【図１１】


発光
7
1
2
3
4
5
6

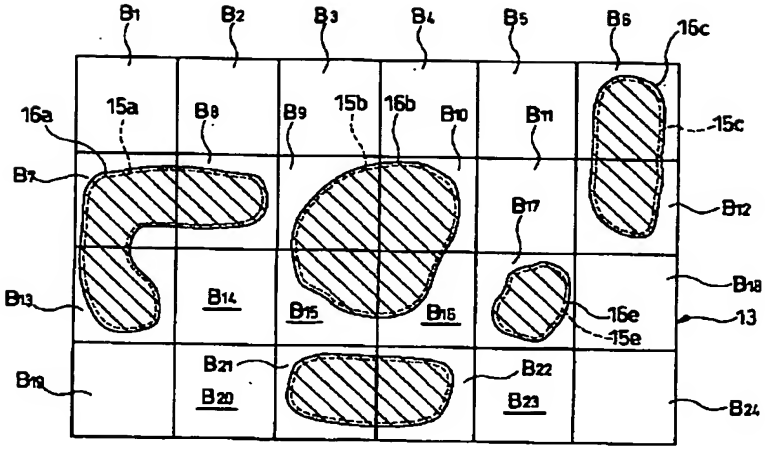
【図２】


10
15
16
17
20A
20B
20
13
50

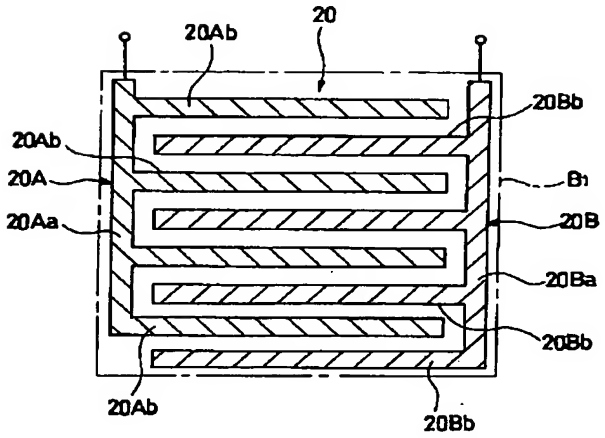
【図１２】


7
M2
M1
A
B
C
M3
P1
P2

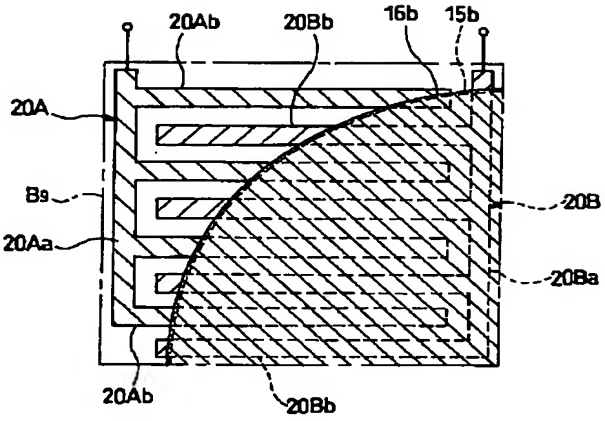
【図３】


B1
B2
B3
B4
B5
B6
16c
16a
15a
B8
B9
15b
16b
B10
B11
15c
B7
B12
B17
B13
B14
B15
B16
B18
16e
13
15e
B19
B21
B22
B20
B23
B24

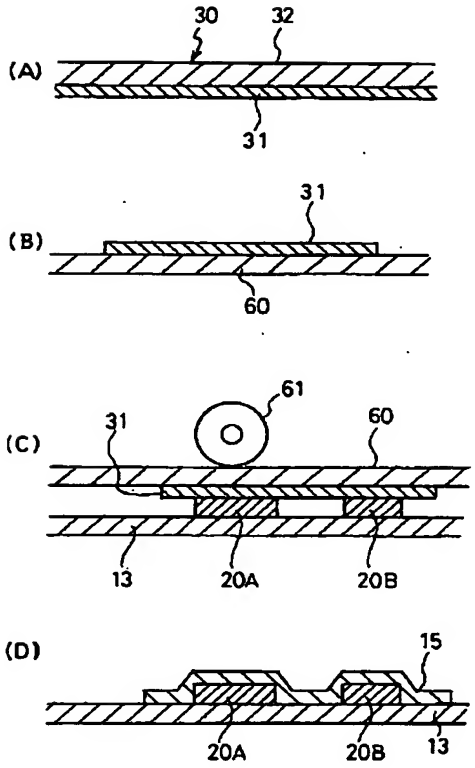
【図４】


20
20Ab
20Bb
20Ab
20A
20Aa
B1
20B
20Ba
20Bb
20Ab
20Bb

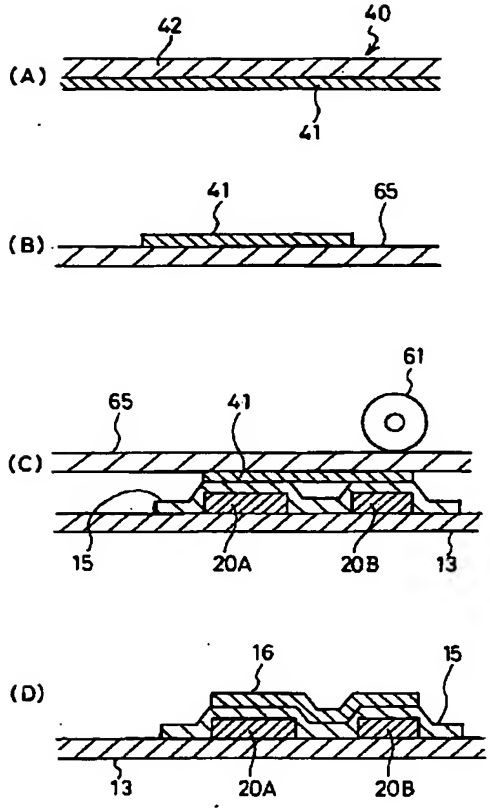
【図５】


20Ab
20Bb
16b
15b
20A
B9
20B
20Aa
20Ba
20Ab
20Bb

【図９】


(A)
30
32
31
(B)
31
60
(C)
61
31
60
13
20A
20B
(D)
15
20A
20B
13

【図１０】


(A)
42
40
41
(B)
41
65
(C)
61
65
41
15
20A
20B
13
(D)
16
15
13
20A
20B